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Jackson et al.

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[54] METHOD AND MEANS FOR CREATING ANTI-GRAVITY ILLUSION

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[73] Assignee: **Triumph International, Inc.**, Los Angeles, Calif.

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[51] **Int. Cl.**[5] **A43B 5/00**; A43B 3/00

[52] **U.S. Cl.** **36/113**; 36/1; 36/136; 36/80; 36/132

[58] **Field of Search** 36/1, 80, 103, 113, 36/114, 131, 132, 136; 482/70, 71, 105

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Assistant Examiner—M. Denise Patterson
Attorney, Agent, or Firm—Drucker & Sommers

[57] **ABSTRACT**

A system for allowing a shoe wearer to lean forwardly beyond his center of gravity by virtue of wearing a specially designed pair of shoes which will engage with a hitch member movably projectable through a stage surface. The shoes have a specially designed heel slot which can be detachably engaged with the hitch member by simply sliding the shoe wearer's foot forward, thereby engaging with the hitch member.

13 Claims, 4 Drawing Sheets

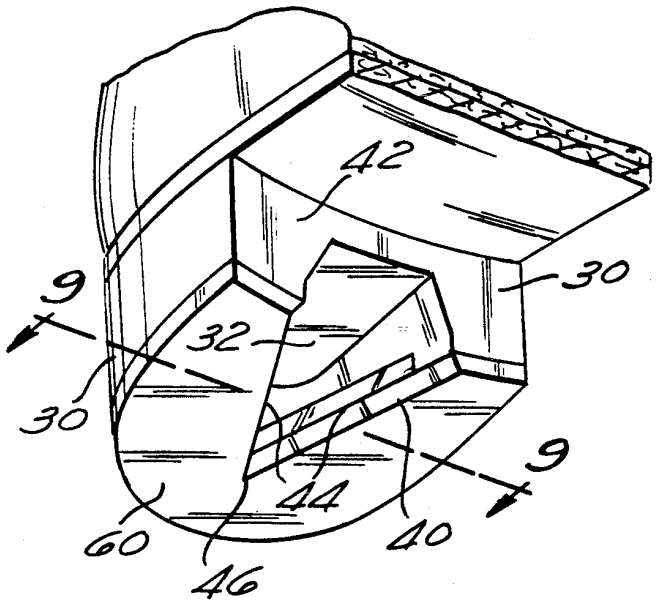

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Fig. 1

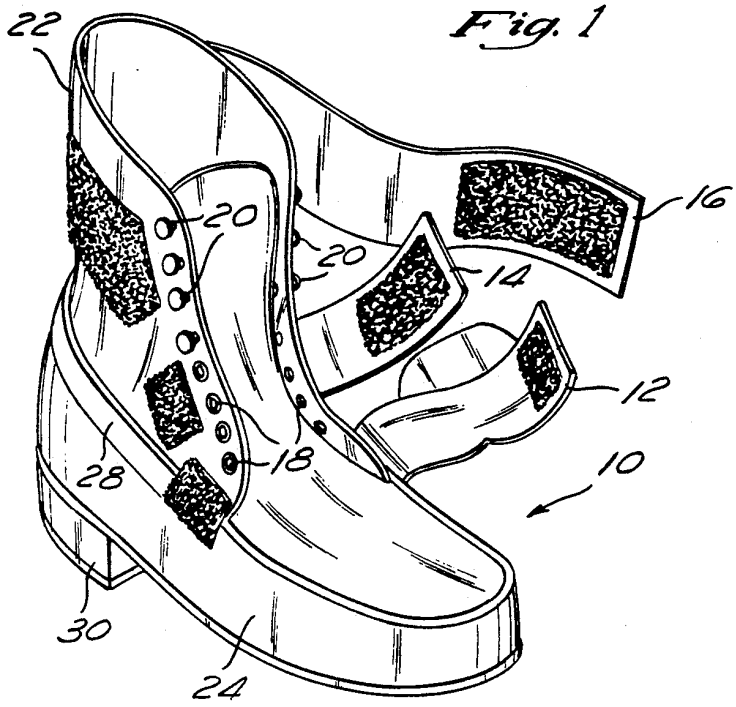
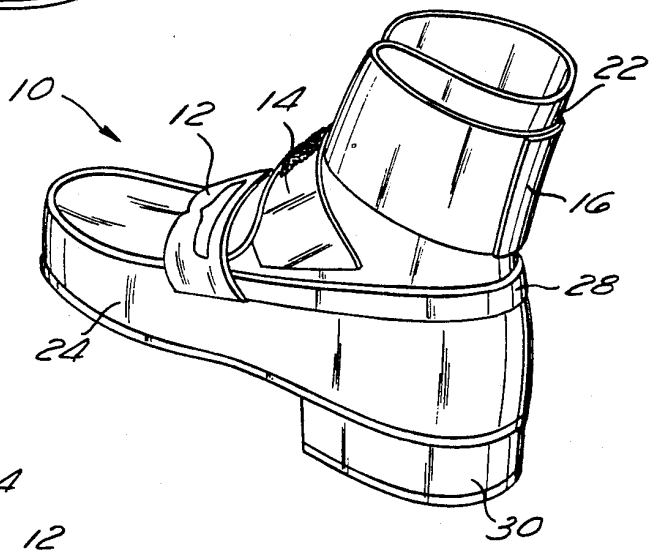


Fig. 3



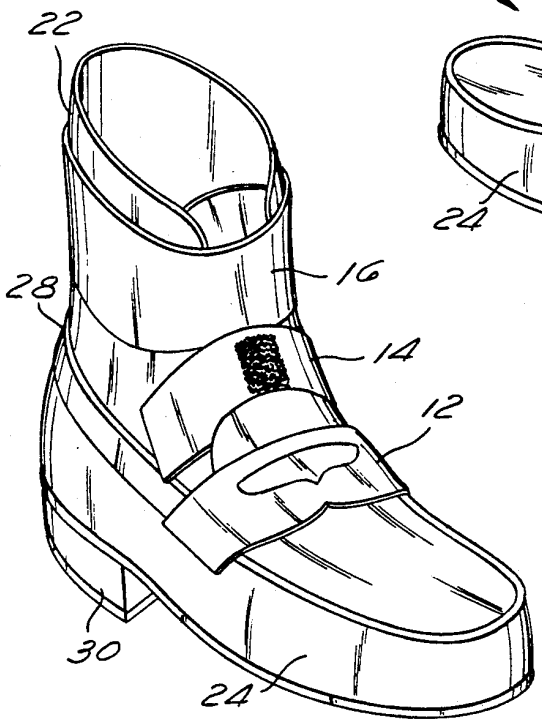


Fig. 2

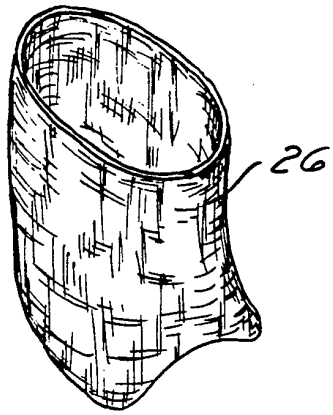


Fig. 4

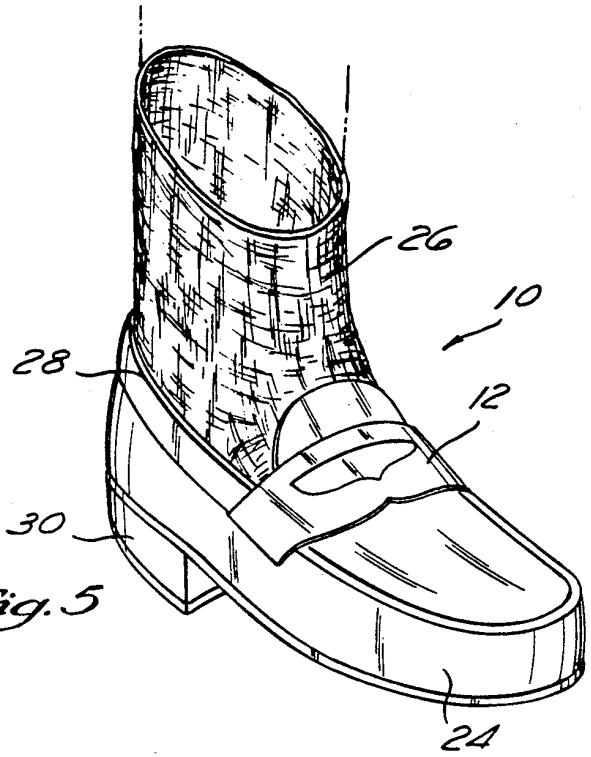


Fig. 5

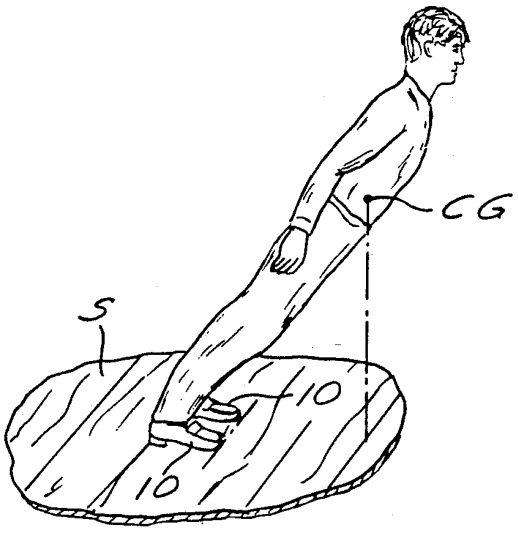


Fig. 6

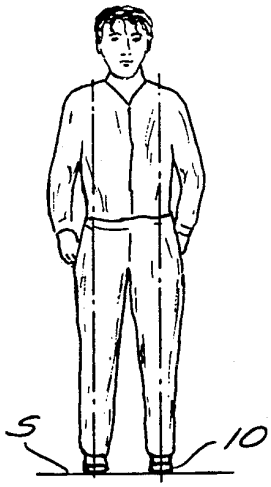


Fig. 14

Fig. 7

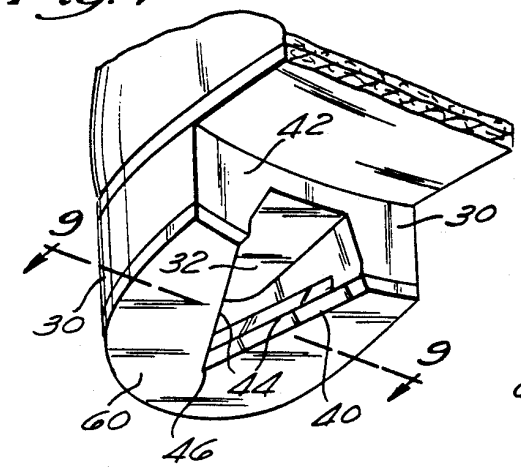
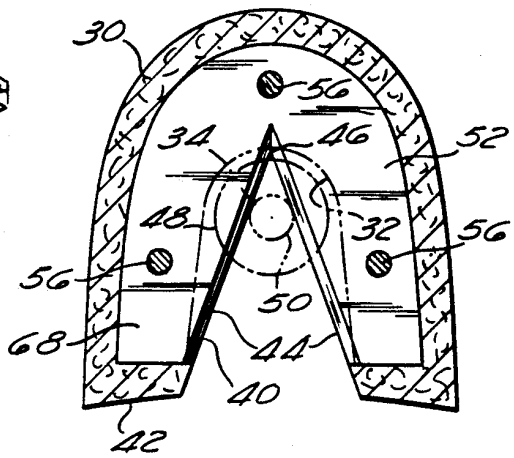


Fig. 10



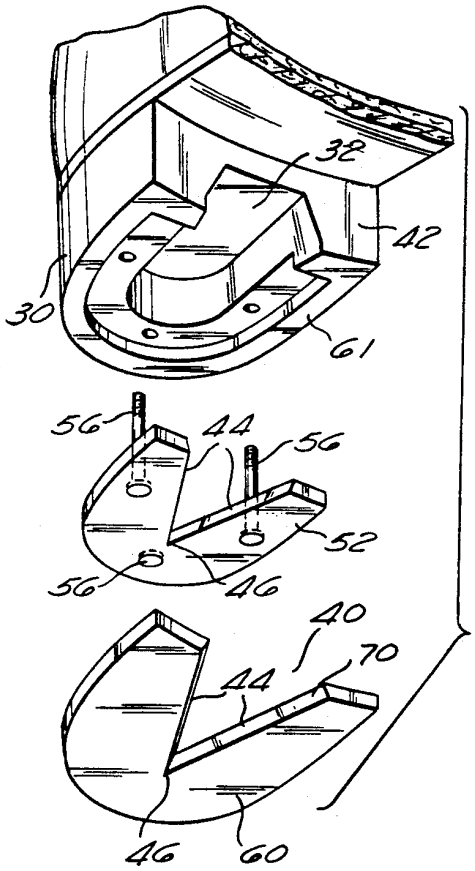


Fig. 8

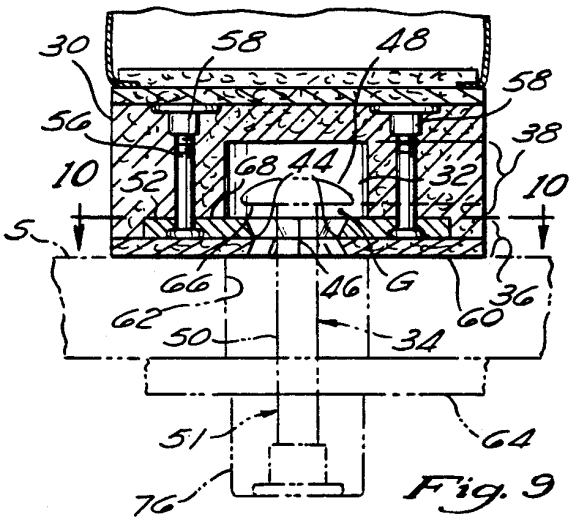
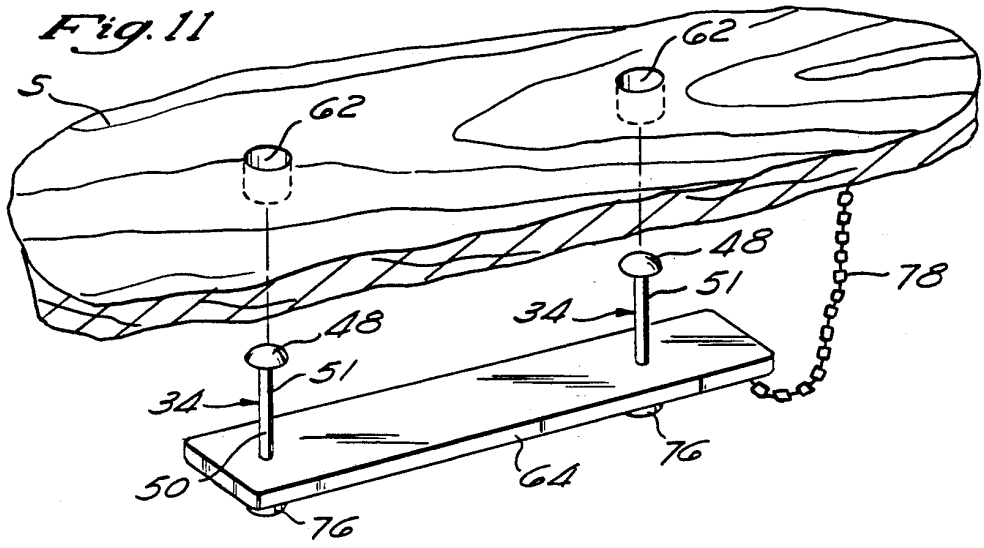


Fig. 9

Fig. 11



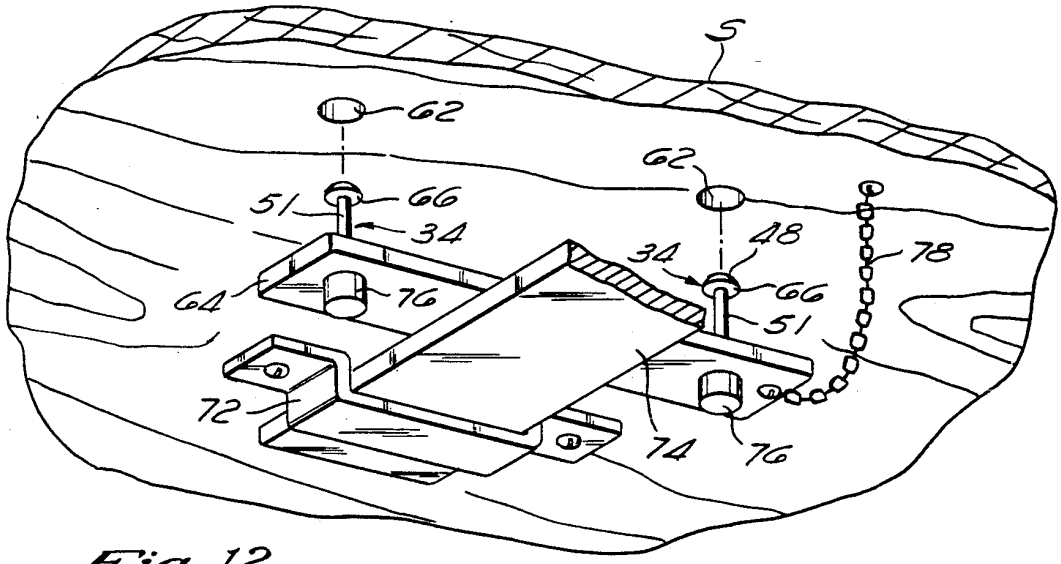


Fig. 12

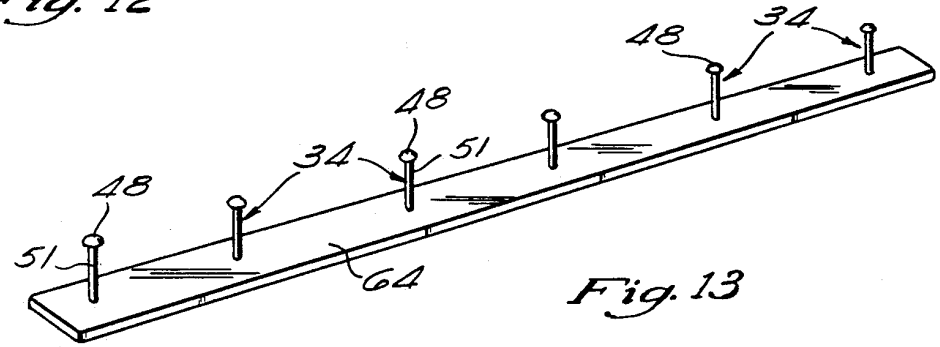


Fig. 13

METHOD AND MEANS FOR CREATING ANTI-GRAVITY ILLUSION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a method and means for creating an anti-gravity illusion effects for entertainment purposes.

This invention relates more particularly to the creation of such illusion by means of specialized footwear and accessories therefor. The specialized footwear is provided with means for engagement with a movably protrudable hitch or post which allows the entertainer to lean forward on a stage at a very acute angle relative to the stage floor to achieve the illusion of defying gravity.

2. Description of the Prior Art

Music entertainers and dancers are constantly searching for new and interesting elements which can be incorporated into their musical and dance performances. Interesting stage design, lighting, fog generators, laser light shows, and large video screens all enhance the appealability of live and recorded performances. Many popular music and dance entertainers expend great efforts in enhancing and choreographing their performances and dancing.

In the past, a professional entertainer, one of the inventors herein, has incorporated dance steps in his recorded video performances, wherein he and other dancers would lean forward beyond their center of gravity, thereby creating an impressive visual effect. This effect was accomplished by the use of cables connecting a harness around the dancer's waist with hooks on a stage, thereby allowing the dancer to lean forward at the required degree. However, since this requires stagehands to connect and then disconnect the cables, it has not been possible to use this system in live performances. Moreover, the cables obviously restricted arm and body movements.

There is disclosed in the prior art footwear which allow the wearer to engage his or her shoes with a stationary object. U.S. Pat. No. 5,042,173 to Blizzard, et al. discloses footwear which can be worn by astronauts and which can be detachably engaged with a rail fixed to a surface to aid astronauts in working in a zero gravity environment. U.S. Pat. No. 1,165,812 to Staubly discloses a rubber overshoe which has a hook on its sole which can be engaged with a plate fixed to a surface to assist in removing the overshoe without having to bending down and touching the overshoes.

However, to the best of our knowledge and belief the prior art does not disclose or suggest the specialized footwear permitting an entertainer to freely move about a stage, while at the same time, enabling engagement with a movable hitch or post, projectable through the stage floor, to enable the illusion to be performed.

SUMMARY OF THE INVENTION

The present invention overcomes the above noted deficiencies of the previously employed cable system by providing specialized footwear and a moveable hitch or post to which the specialized footwear can be detachably engaged to allow the footwear wearer to lean forward on the stage, with his or her center of gravity well beyond the front of the shoes, thereby creating the desired visual effect.

The invention provides a new design for shoes which will allow his or her performing artist, by engaging the shoes onto an upstanding post positioned to project upwardly from a stage at a predetermined time, to lean forwardly to put his or her center of gravity beyond the front or rear of his shoes, thereby creating the desired gravity defying interesting visual effect.

The invention provides a system for engaging footwear with a hitch or post means, comprising:

shoes having a first engagement means; and

a second engagement means being movably protrudable through a stable surface (usually a stage platform) between a first stable protruding position raised above the stable surface and a second retracted position lowered below, or flush with, the stable surface. The first engagement means is engageable with the said second engagement means when said second engagement means is in the first stable protruding position. The second retracted position is preferably flush with the stable surface so as not to impede the performer in any way in his movements and dance before and after the hitch or post is exposed in the first protruding position.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described below in greater detail with reference to the drawing:

FIG. **1** is a front perspective view of specialized footwear, viz. a shoe of the invention with its fastening straps opened;

FIG. **2** is a front perspective view of the shoe of FIG. **1**, shown with its fastening straps closed;

FIG. **3** is rear perspective view of the shoe of FIG. **1** with its straps closed;

FIG. **4** is perspective front view of a sock covering section;

FIG. **5** is a perspective front view of the shoe with the sock covering section of FIG. **4** in place;

FIG. **6** is a side perspective view of a dancer wearing the shoes, shown leaning forward beyond his center of gravity;

FIG. **7** is a bottom perspective view of the heel of the shoe;

FIG. **8** is an exploded bottom view of the heel of the shoe;

FIG. **9** is a partial front cross-sectional view of the heel of the shoe and the hitch, taken along lines **9**—**9** of FIG. **7**;

FIG. **10** is a transverse sectional view along lines **10**—**10** of FIG. **9**;

FIG. **11** is a perspective view, in partial cross-section of the hitches or posts attached to a plate, shown in alignment with holes in a stage surface;

FIG. **12** is a perspective view of the hitch carrying plate of FIG. **11** and a stage engagement mechanism to secure the plate against the underside of the stage surface;

FIG. **13** is a perspective view of a hitch carrying plate with three pairs of hitches or posts affixed thereto; and

FIG. **14** is a front elevational view of a performing artist wearing the shoes of this invention, showing the optimum spacing of the pair of hitches relative to the shoulders of the performing artist.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, there is illustrated, in FIG. **1**, a front perspective view of the shoe **10** utilized

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in this invention, with fastening straps **12**, **14**, and **16** (not fastened) to reveal lacing eyelets **18** and lacing hooks **20**. The shoe **10** rides relatively high on the wearer's ankles, as shown in FIG. **2** and **3**, and can be snugly secured around the wearer's ankles by use of the straps **12**, **14** and **16** and/or shoe laces (not shown) which can be tightly laced through the eyelets **18** and lacing hooks **20**. The use of shoe laces provides for a snugger fit than by the straps **12**, **14** and **16** straps, but the use of straps **12**, **14** and **16** allows the shoes **10** to be put on and removed more quickly as timing, for this particular "move," may be extremely critical and of short duration. In order to conceal the nature of the shoes **10**, the front of strap **12** can be made to appear as the tongue and strap of a penny loafer. Spats (not shown) or pant legs can be used to cover the upper part **22** of the shoes **10**, as best shown in FIG. **6**, and the lower part **24** of the shoe **10** will thus be made to appear as a normal walking or dance shoe. Also, as shown in FIGS. **4** and **5**, an upper sock section **26** can be used to conceal the upper part **22** of the shoe **10**, the sock section **26** fitting around a peripheral edge **28** of the shoe **10**.

Referring to FIGS. **7–10**, the heels **30** of the shoes **10** have a recess **32** formed therein adapted to detachably receive a hitch or post **34**, thereby locking the heels **30** of the shoes **10** in place relative to the stage surface S through which the hitch **34** protrudes. A V-shaped guide **40** is located below recess **32**, with the mouth of the V located at the leading edge **42** of the heel **30**. The guide **40** forms the entrance to the recess **32**. The front of the V-shaped guide **40** lies flush with the leading edge **42** of the heel **30**. Edges **44**, forming the V-shaped guide **40** terminate rearwardly of leading edge **42** at a terminal end point **46**.

The V-shaped slot **40** is formed in the lower region **36** of the heel, preferably by two layers of materials, an outer or exposed layer **60**, preferably made of leather, and an inner overlying layer, preferably consisting of a metal plate **52**. The upper region **38** of the heel, above the metal plate layer **52** has the hitch-post receiving recess **32** formed therein. The metal plate **52** is affixed to the heel portion of the shoe, as described hereafter.

Referring to FIGS. **9–12** the shoe hitch **34** preferably comprises a pair of steel bolts, each bolt **51** having an enlarged preferably rounded head **48** relative to its shank **50**. Enlarged bolt head **48** has a diameter less than the width of the recess **32**. The bolt shank **50** is of somewhat less diameter than the mouth of the V-shaped guide **40**. The head **48** is wider than the terminal end point **46** of the V-shaped guide **40**. The recess **32** is formed so that it is wider than the head **48** of the hitch **34**.

As shown in FIGS. **9** and **10**, when the heel **30** of the shoe is placed over the bolt head **48** so that the mouth of the V-shaped slot **40** overlies the head **48**, the heel **30** may then be lowered and slid forwardly until the shank **50** of the hitch **34** contacts both edges **44** of the V-shaped guide **40**. The bolt head **48** will lie in recess **32** above said V-shaped slot guide **40**, and the shoe will be stably positioned relative to the stage floors. Three countersunk bolts **56** and threaded inserts **58** can be used to assure reliable affixation of the metal plate **52** of the heel **30** to the rest of the shoe **10**. The exposed outer layer **60** of the heel is affixed to the perimeter **61** of the heel (outlying the metal plate **52**) by suitable conventional adhesive and/or tacking means (not shown).

Referring to FIGS. **9**, **11** and **12**, the bolts **51** of the hitch **34** are made to be movably protrudable through holes or openings **62** formed through the stage surface S. The holes **62** are oversized so as to allow the bolt heads **48** to freely pass therethrough. The bolts **51** are permanently affixed to a metal plate **64**, and the length of the bolt shank **50** of the bolts is such that when the metal plate **64** carrying the bolts is stably placed against the underside of the stage surface S, the head **48** will be spaced sufficiently high off the stage surface S so that the bottom edge **66** of the head **48** will clear the top edge **68** of the metal plate **52**, leaving a slight gap G. This slight gap G will allow the entertainer to slide his or her shoes **10** forward to engage the head **48** of the hitch **34** with the V-shaped slot **40**. It has been found that a gap G of approximately one-eighth of an inch is ideal for lighter dancers, while slightly deeper gaps are required for heavier dancers. Also, referring again to FIG. **9**, the metal plate **60** is formed so that its V-shaped slot edges and the V-shaped edges **70** of the heel covering material **60** form flush V-shaped edges **44**. The V-shaped guide **40**, so formed, is preferred, as it minimizes the chances of the hitch **34** inadvertently becoming jammed in the V-shaped guide, and thereby preventing the shoe **10** from being disengaged from the hitch **34** after the "anti-gravity" move is completed.

Turning again to FIGS. **11** and **12**, a simple mechanical means can be used to stabilize the metal plate **64** with its bolts **51** relative to the stage surface S. For this purpose, slide brackets **72** are affixed to the underside of the stage surface S. After the metal plate **64** is positioned and bolts **51** aligned with openings **62**, one or more metal support bars **74** can be slid into the sliding brackets **72**, and under the metal plate **64**, to hold the plate **64** tightly against the underside of the stage surface S. Also, as is shown in FIGS. **9**, **11** and **12**, if it is desired to plug the holes **62** in the stage surface S when the hitches **34** are withdrawn, plug protrusions **76** can be provided on another side of the metal plate **64**. When the metal plate **64** is oriented with the plug protrusions **76** directed upwardly, the metal plate **64** can be immobilized relative to the stage surface. The plug protrusions **76** will be just long enough so that they lie essentially flush with or the stage surface S. A chain **78** or other means may be used to retain the metal plate **64** to the underside of the stage surface S, if desired.

Referring to FIG. **13**, multiple pairs of hitches **34** can be provided on a single metal plate **64**, if desired.

In lieu of the mechanical means, alternate mechanisms can be provided to raise and lower the hitches by pneumatic, electromagnetic, hydraulic, other mechanical means, or by any other known means. As presently contemplated, the hitch **34** will be raised and lowered by stage personnel stationed under the stage surface S. The inventors also contemplate that the hitch **34** could also be raised by the entertainer himself or herself by remote control means, such as by radio control, when automated means is used to raise and lower the hitches **34**.

When the hitch **34** is locked in its raised position, the performer can engage his or her heels **30** with the hitch **34**, and he or she can then safely lean forward as far as he or she desires and is capable of, so that his or her center of gravity CG lies in front of the shoes **10**, as shown in FIG. **6**. After returning to a normal standing position, the dancer can slide his or her shoes **10** rearwardly, thus readily disengaging from the hitches **34**. Thereafter, the hitches **34** can be pulled out of the holes **62** in the stage and plugged, if desired.

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Referring to FIG. **14**, it has been found that the pair of hitches **34** should ideally be spaced between the shoulder blades of a dancer, a width of approximately 14–20″ apart. Such a spacing provides maximum stability during the leaning.

The drawings and the foregoing description are not intended to represent the only form of the invention in regard to the details of this construction and manner of operation. In fact, it will be evident to one skilled in the art that modifications and variations may be made without departing from the spirit and scope of the invention. Although specific terms have been employed, they are intended in a generic and descriptive sense only and not for the purpose of limitation, the scope of the invention being delineated in the following claims:

I claim:

1. A system for engaging shoes with a hitch mans to permit a person standing on a stage surface to lean forwardly beyond his or her center of gravity, comprising:

at least one shoe having a heel with a first engagement means, said first engagement means comprising a recess formed in a heel of said shoe covered with a heel slot plane located at a bottom region of said heel, said heel slot plate having a slot formed therein with a relatively wide opening at a leading edge of said heel and a narrower terminal end rearward of said leading edge, said recess being larger in size above said terminal end of said slot than is said terminal end of said slot; and

a second engagement means, detachably engageable with said first engagement means, comprising a hitch member having an enlarged head portion connected by a narrower shank portion to a means for raising and lowering said head of said hitch member above and substantially level with or below said stage surface, said head portion being larger in size than said terminal end of said slot and said shank portion being narrower than said terminal end of said slot, wherein said hitch member can be moved through apertures in said stage surface between a projecting position raised above said stage surface and a retracted position at or below the stage surface, and when said head portion of said hitch member is raised above said stage surface, said first engagement means can be detachably engaged with said projecting hitch member, thereby allowing a person wearing the shoes to lean forwardly with his or her normal center of gravity beyond a front region of said shoes, and maintain said forward lean.

2. The system of claim **1**, wherein said slot in said heel slot plate is V-shaped, with the mouth of the V at the leading edge of said heel.

3. The system of **1**, wherein said shoe has strapping means to secure the shoe to the wearer's feet.

4. The system of claim **1**, wherein said shoe has lace means to secure the shoe to the wearer's feet.

5. The system of claim **1**, wherein said shoe has extension means overlying the wearer's ankle, and is provided with covering means to conceal the said extension means of said shoe.

6. The system of claim **5**, wherein said covering means comprises a sock-like covering.

7. A system for engaging shoes with a hitch means to permit a person standing on a stage surface to lean forwardly beyond his or her center of gravity in a stable manner, comprising:

at least one shoe having a heel with a first engagement means, said first engagement means comprising a recess formed in a heel of said shoe, said recess having a relatively wide opening at a leading edge of said heel and a narrower terminal end rearward of said leading edge; and

a second engagement means, detachably engagable with said first engagement means, comprising a hitch member having an enlarged head portion, connected to a means for raising and lowering said hitch member above and substantially level with or below said stage surface, wherein said hitch member can be moved through apertures in said stage surface between a projecting position raised above said stage surface and a retracted position at or below the stage surface, and when said hitch member is raised above said stage surface, said first engagement means is detachably engagable with said projecting hitch member, thereby allowing a person wearing the shoes to lean forwardly with his or her normal center of gravity beyond a front region or said shoes, and maintain said forward lean.

8. The system of claim **7**, wherein said recess is covered with a heel slot plate located at a bottom region of said heel, said heel slot plate having a slot formed therein.

9. The system of claim **8**, wherein said slot in said heel slot plate is V-shaped, with the mouth of the V at the leading edge of said heel.

10. The system of claim **7**, wherein said shoe has strapping means to secure the shoe to the wearer's feet.

11. The system of claim **7**, wherein said shoe has lace means to secure the shoe to the wearer's feet.

12. The system of claim **7**, wherein said shoe has extension means overlying the wearer's ankle, and is provided with covering means to conceal the said extension means of said shoe.

13. The system of claim **12**, wherein said covering means comprises a sock-like covering.

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